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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies	)	ET Docket No. 92-9

COMMENTS OF
TELESCIENCES, INC.

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Dated: June 8, 1992

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List A B C D E

TABLE OF CONTENTS

SUMMARY

Telesciences eagerly anticipates the introduction of new wireless technologies in the United States and generally supports the Commission's objective to foster the development of advanced, spectrum efficient emerging technologies in the United States. As a major manufacturer of state-of-the-art telecommunications products, including microwave radio equipment, Telesciences expects that the introduction of new emerging technologies will bring substantial benefits to U.S. industry and users.

Telesciences strongly believes, however, that the Commission should not adopt its reallocation proposal as set forth in the Notice. In addition to addressing the numerous substantial issues identified by other parties concerning the proposal to reallocate the 1.8-1.9 GHz band, Telesciences strongly urges the Commission to consider the equally serious issues raised by its proposal to reallocate the 2.1-2.2 GHz band and not to reallocate these frequencies at this time. To that end, Telesciences underscores in its comments the specific 2.1-2.2 GHz band issues raised by the Commission's reallocation proposal.

The U.S. manufacturing industry and existing users have not had sufficient advance notice of the impending loss of the 2.1-2.1 GHz band for fixed operations. Both the industry and Commission have discussed reallocation for emerging technologies primarily in connection with frequencies other than the 2.1-2.2

GHz band. Further, existing fixed microwave users rely heavily on these frequency bands.

Telesciences also believes that the Commission has not adequately explored alternative spectrum, including underutilized government spectrum, that could be used for emerging technologies. Further, the Commission should not reallocate the 2.1-2.2 GHz band away from important existing uses until it obtains further information regarding the technical feasibility of spectrum sharing and the extent of real market demand for emerging technology services.

If the Commission nonetheless decides that spectrum should be allocated at this time, Telesciences supports a phased approach whereby underutilized government frequencies would initially be devoted to emerging technologies, and frequencies in the 1.8-1.9 GHz band and the 2.1-2.2 GHz band would be reallocated in later phases. Under any reallocation approach adopted by the Commission, Telesciences urges the Commission to amend the channelization and other technical rules for the greatly underutilized 10 GHz Digital Termination Service frequencies to accommodate fixed point-to-point operations. Telesciences also supports other rule changes to the technical rules governing the 4 and 6 GHz band to accommodate displaced 2 GHz users.

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Telesciences, Inc. ("Telesciences"), hereby submits its comments in response to the Commission's Notice of Proposed Rulemaking ("Notice") in the above-captioned proceeding.[1/]

INTRODUCTION AND BACKGROUND

I. The Commission's Spectrum Reallocation Proposals

The Commission's Notice targets 220 MHz of spectrum located between the 1.85 to 2.2 GHz band to be reserved for a variety of emerging wireless technologies which the Commission may authorize in separate rulemaking proceedings. Such new wireless services include personal communications services ("PCS"), generic mobile satellite service, digital audio broadcasting ("DAB") service and low earth orbit satellite service. To clear the 1.8 to 2.2 GHz band of current private and common carrier fixed microwave users, the Commission has proposed an unprecedented reallocation plan to

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1/ Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, Notice of Proposed Rulemaking, ET Docket No. 92-9, FCC 92-20 (released February 7, 1992).

encourage the numerous existing fixed microwave users to move to other fixed microwave bands above 3 GHz or to alternative media such as fiber optics, cable and satellite communications. The Commission has specifically proposed the reallocation of the 1.85-1.99 GHz, 2.11-2.15 GHz and 2.16-2.2 GHz bands.

II. Statement of Interest

Telesciences, headquartered in San Francisco, California, is a leader in the design, manufacture, installation and service of analog and digital microwave radio transmission systems, which operate in, among other frequencies, the 1.8 to 2.2 GHz band.[2/] Telesciences pioneered the 2 GHz digital microwave radio technology in the 1970s. Today, Telesciences is a major manufacturer of 2 GHz equipment and continues to pursue the development of innovative, efficient digital microwave radio technologies in conjunction with manufacturing high-quality microwave radio equipment used in the Part 21 common carrier point-to-point and Part 94 private operational-fixed microwave services, and by federal government users.[3/]

[2/] Telesciences, Inc. is a well-established, major manufacturer of high-quality digital microwave radio and other state-of-the-art telecommunications products. Located in Silicon Valley, Telesciences supplies sophisticated communications products to operating telephone companies, cellular radio service providers, utilities and private networks.

[3/] Telesciences' product lines include a wide variety of microwave radio equipment using the 2 to 23 GHz frequency range with capacity of up to 45 Mbps.

Telesciences is acutely aware of the important spectrum needs of new advanced wireless technologies under development in the United States and Europe in the past several years. Indeed, Telesciences has devoted substantial financial and personnel resources toward research and development of advanced wireless technologies, and is poised to make significant contributions to the introduction of these new services to the American public through its high quality equipment products.

Telesciences has followed closely the technical and regulatory developments regarding new wireless technologies in the United States. Telesciences is thus aware that many parties have submitted their views to the Commission regarding the proposed reallocation of the 1.8-1.9 GHz band and have raised a number of serious legal and technical issues regarding the plan to clear that portion of the band of fixed operations to make room for emerging technology users.[4/] Indeed, virtually all debate and discussion at the Commission and in private industry regarding emerging technologies has focussed on the 1.8-1.9 GHz band. Accordingly, the record is replete with extensive comments discussing the public interest considerations relating to the

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[4/] See, e.g., Petition for Rulemaking, by Alcatel Network Systems, Inc., filed May 22, 1992; Petition for Issuance of Further Notice of Proposed Rulemaking, ET Docket No. 92-9, by the Utilities Telecommunications Council, filed May 1, 1992; Petition to Suspend Proceeding, by the Association of American Railroads, Large Public Power Council, and the American Petroleum Institute, filed April 10, 1992; Petition for Rulemaking, ET Docket No. 9209, filed by the Utilities Telecommunications Council, March 31, 1992.

current and proposed use of the 1.8-1.9 GHz band. Although Telesciences believes that the Commission should pursue the serious concerns raised regarding the plan to devote the 1.8-1.9 GHz band to an emerging technologies reserve spectrum, Telesciences' unique contribution in this proceeding is to underscore that the reallocation issues relating to the 2.1-2.2 GHz band are equally important and should not be ignored by the Commission. Rather than add to the wealth of comment on the 1.8-1.9 GHz issues that has already been submitted (and will be submitted in the future), Telesciences submits these comments to address expressly the substantial public interest considerations raised by the Commission's proposal to reallocate the 2.1-2.2 GHz band.[5/]

As a major manufacturer of 2 GHz equipment, however, Telesciences is particularly concerned that the Commission's proposal to adopt a reallocation plan for the 2.1-2.2 GHz microwave band is premature. In particular, the Commission announced its proposal in the Notice to reallocate the 2.11-2.15 and 2.16-2.2 GHz frequency bands with little advance notice to the manufacturing industry or users or adequate inquiry. These bands are heavily used by spectrally efficient, proven fixed microwave technologies. The proposed relocation of all these

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[5/] Telesciences' comments thus address primarily the impact of the Commission's proposal on the 2.1-2.2 GHz band and do not, at this time, unless specifically stated otherwise, address the issues raised by the Notice as they may apply to other targeted frequencies.

provide additional spectrum for displaced 2 GHz users, Telesciences also proposes that the 10 GHz Digital Termination Service ("DTS") band be made available for point-to-point operations.

DISCUSSION

III. The Commission Should Not Reallocate the 2.1-2.2 GHz Band At This Time

As a major manufacturer of 2 GHz equipment, Telesciences believes that the Commission's proposal to reallocate the 2.1-2.2 GHz microwave frequencies is premature. Most common carrier and private microwave users prefer the 2 GHz frequencies because they provide superior path reliability for high quality communications networks at the lowest cost. Moreover, use of the 2.1-2.2 GHz bands has been increasingly active since the development of cellular networks. To address this growing demand, manufacturers of microwave radio equipment, such as Telesciences, have made substantial capital investments in the development of new, spectrally efficient 2 GHz microwave radios over the past several years. Cellular operators and other 2.1-2.2 GHz microwave users have similarly committed substantial resources to 2 GHz operations.

Given the heavy reliance by existing users on the 2.1-2.2 GHz band, Telesciences believes that the Commission has not provided the microwave equipment manufacturing industry, or its user customers, sufficient advance notice of the proposed

impending loss of the 2.1-2.2 GHz frequencies for common carrier and private microwave use. To date, most industry attention and Commission debate regarding the spectrum needed for the introduction of emerging technologies has focused on frequencies other than the 2.1-2.2 GHz band.[6/] The Commission has made only passing reference to the possibility that the 2.1-2.2 GHz band would be targeted for reallocation.[7/]

Accordingly, Telesciences submits that the Commission's reallocation of the 2.1-2.2 GHz microwave band under consideration in ET Docket 92-9 should be deferred for further consideration. That consideration should include a thorough inquiry into whether the 2.1-2.2 GHz bands are the most suitable frequencies for reallocation given the relative availability of other non-government and government spectrum, and the very substantial investment made by users and manufacturers in the 2 GHz common carrier and private microwave bands.

The Commission should be acutely aware of the practical impact its decision in this proceeding will have (and already has

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6/ Indeed, most experimental licenses granted by the Commission for PCS experiments authorize tests on the 1850-1990 MHz band; only a handful of experimental licensees have proposed PCS experiments on the 2.1-2.2 GHz band.

7/ See, e.g., Amendment of the Commission's Rules to Establish New Personal Communications Services, Policy Statement and Order, Gen. Docket No. 90-314 (released October 25, 1991)("Policy Statement")(suggesting that portion of PCS spectrum should come from 1.8-2.2 GHz band).

had) on the U.S. equipment manufacturing industry.[8/] Telesciences believes that, absent equivalent channelization plans and other appropriate technical rules for operation in the replacement bands, the Commission's transition plan proposed in the Notice is not adequate for existing users of the 2.1-2.2 GHz band. Reallocation plans such as that proposed for the 2.1-2.2 GHz band in the Notice could seriously impair some manufacturers, particularly those companies whose principal product is 2 GHz microwave equipment. Accordingly, to the extent that some manufacturers are impaired as a result of the Commission's decision in this proceeding, U.S. consumers will lose the substantial benefits of having access to a diverse marketplace in which a multiplicity of competitive manufacturers participate.

Given that the Commission's actions have had and will continue to have a significant material effect on manufacturers, the Commission should ensure that any decision to reallocate the 2 GHz band is made based on a careful and comprehensive examination of all relevant factors. Further, common carrier and private microwave users in the 2.1-2.2 GHz band and the

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[8/] Many of Telesciences' customers, unwilling to operate their microwave facilities on a secondary status, have already suspended their planned equipment purchases in response to the Commission's declaration in the Notice. While the Commission's recent announcement of 2 GHz licensing policies has provided some clarification for Telesciences' customers. See Two Gigahertz Fixed Microwave Licensing Policy, Public Notice 23115 (released May 14, 1992), the Commission's action has caused substantial uncertainty for users attempting to develop plans for future microwave networks.

manufacturing community should be afforded an appropriate time period for market adjustment.

A. The Commission Has Not Fully Explored Alternative Spectrum for an Emerging Technologies Reserve Band

The OET Report,[9/] which forms the basis of the Commission's proposed reallocation scheme, evaluated the Part 94 and Part 21 use of the 2 GHz band. The OET Report examined the number of facilities, the technical operating parameters of the facilities, and the communications requirements of existing licensees. On the basis of this information, the OET Report also considered the economic feasibility of relocating these users in other frequency bands.

The Commission has not, however, undertaken a similarly rigorous analysis of the government allocated spectrum at 2 GHz (1710-1850 MHz and 2200-2290 MHz),[10/] the broadcast auxiliary

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9/ Creating New Technology Bands for Emerging Telecommunications Technology, FCC/OET TS91-1 (January, 1992).

10/ Telesciences recognizes that the National Telecommunications and Information Administration is, in the first instance, the appropriate agency to analyze the current use of government spectrum. See Letter to Alfred C. Sikes, Chairman, Federal Communications Commission, from Thomas J. Sugrue, Acting Assistant Secretary, U.S. Dept. of Commerce, dated May 4, 1992. Telesciences urges the Commission to continue to work with the NTIA to explore seriously the possible use of government frequencies in the emerging technologies reserve band. Indeed, Telesciences believes that the Commission should place high priority on the potential use of government spectrum and the Commission's discussions with the NTIA in this regard.

band (1990-2110 MHz)[11] or the 2.5 GHz band (2500-2690 MHz).[12] Together, these spectrum portions represent 540 MHz of spectrum that the Commission has not yet thoroughly considered to determine how many users exist on those bands, whether the utilization is more or less than the bands currently allocated for nongovernmental common carrier use, the potential frequencies for relocation for these users, and the economic costs of relocation.[13]

Upon closer examination, the Commission may find that the public interest would be served by devoting these or other frequency bands to the emerging technologies reserve band particularly given the current extensive use of the 2.1-2.2 GHz

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[11] See Petition for Issuance of Further Notice of Proposed Rulemaking, ET Docket No. 92-9, by the Utilities Telecommunications Council, filed May 1, 1992 (requesting consideration of reallocation of spectrum other than 2 GHz).

[12] Id.

[13] In the Commission's Policy Statement recently adopted on October 24, 1991, the Commission stated that "[w]e intend to consider the results of the WARC in developing our domestic PCS allocations." The Commission released its Notice in ET Docket No. 92-9, however, before WARC-92 even convened. Nonetheless, now that the WARC-92 deliberations have been completed the result is that there now exists worldwide primary allocation to the mobile service band 1700-2690 GHz. Final Acts of the World Administrative Radio Conference (WARC-92), Magala-Torremolinos, available in Gen. Docket 89-554, An Inquiry Relating to Preparation for the International Telecommunication Union World Administrative Radio Conference for Dealing with Frequency Allocations on Certain parts of the Spectrum (March 1992). The WARC-92 deliberations concluded that the 1700-2690 GHz band should be devoted to mobile services. The WARC-92 discussions present additional reason for the Commission to fully consider all frequencies in this range as potential spectrum for the emerging technologies reserve band.

portion of the band. Telesciences believes that before displacing the numerous existing common carrier and private microwave users, it is incumbent on the Commission to evaluate these (and perhaps other) frequency ranges using the same criteria it applied to the targeted 2.1-2.2 GHz band.[14/] Further, interested parties should be provided an opportunity to comment on the Commission's conclusions in that regard.

B. The Commission Does Not Yet Have Sufficient Information to Determine Whether Sharing is Feasible

While Telesciences supports the underlying intent of the Notice to promote the growth of advanced wireless communications services, it has substantial concerns about the Commission's specific 220 MHz spectrum reserve proposal. In particular, Telesciences believes that wholesale reallocation of the 220 MHz should not be adopted at a time when elemental features of emerging technology services are still developing.

The evolving state of various emerging technology proposals pending before the Commission underscores the need for the Commission to take a carefully measured approach in this proceeding. Emerging PCS services, for example, which have received the most attention to date from both the industry and the Commission, are still loosely defined, and their economic and market viability has not yet been proven conclusively.

[14/] See Notice at ¶ 10 (criteria used in targeting spectrum for emerging technologies band).

The Commission's 220 MHz reallocation proposal for emerging technology is unwarranted at this time given that few market and technical tests assessing emerging technologies operating in the 2.1-2.2 GHz band, have been completed.[15/]

In the Commission's October Policy Statement concerning PCS, the Commission urged that "[e]xplorations of spectrum availability . . . should proceed to a successful conclusion and should answer the questions dealing with sharing and the cost of substituting services." Policy Statement at ¶ 4. Market and technical tests have not yet provided conclusive data regarding sharing between fixed users and new PCS users. While early test results have been submitted, no final conclusions can be drawn from these tests (even though preliminary results show some form of sharing can exist.) The Commission, therefore, does not yet have all the information necessary to establish rules that appropriately balance the interests of existing and prospective users of the 2.1-2.2 GHz band.

Although the Commission cites strong public interest reasons for reallocating the 2.1-2.2 GHz spectrum to emerging

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[15/] For example, the Commission has granted numerous experimental licenses at frequencies ranging from 614 to 29140 MHz to test PCS technologies. Most experimental licenses for PCS have authorized operation on the 1850-1990 MHz bands and many of the experimental trials have produced only preliminary (if any) results. For example, PCN America, Inc., Graphic Scanning, American Personal Communications, Inc. and Motorola, Inc. all were granted experimental licenses at 1850-1990 MHz to conduct market tests and to verify whether spread spectrum digital technology for PCS can co-exist with existing point-to-point microwave installations. These experiments and numerous others are ongoing.

technologies as quickly as possible, experience with other new services dictates that the Commission proceed with caution. The market viability of these types of services is still unproven. Private field trials in the United States are incomplete and the introduction of advanced wireless services abroad have been either disappointing (e.g. Telepoint services in the United Kingdom) or incomplete (e.g. PCN tests in the United Kingdom).

The Commission's experience with spectrum allocations for other emerging technologies such as Digital Termination Service ("DTS") and Direct Broadcast Satellite Service ("DBS"), beckon the Commission to act with extreme caution before displacing existing common carrier microwave licensees in the 2 GHz band to make room for emerging technologies. The experience with DTS and DBS is telling; years after the Commission allocated frequencies for DTS and DBS, these services have yet to be made commercially available on a widespread basis.[16/] Failure to strike the appropriate balance in this proceeding could result in the

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[16/] See Amendment of Parts 2, 21, 87 and 90 of the Commission's rules to Allocate Spectrum for, and to Establish Other Rules and Policies Pertaining to, the Use of Radio in Digital Termination Systems for the Provision of Digital Communications Services, First Report & Order, Gen. Docket No. 79-188, RM-3247, FCC 81-18, 86 F.C.C.2d 360 (1981), Memorandum Opinion & Order, FCC 82-215, 90 F.C.C.2d 319 (1982), Second Report & Order, FCC 83-392, 54 Rad. Reg. 2d (P&F) 1091 (1983); Inquiry into the Development of Regulatory Policy in Regard to Direct Broadcast Satellites for the Period Following the 1983 Regional Administrative Radio Conference, Report & Order, Gen. Docket No. 80-603, FCC 82-285, 90 F.C.C.2d 676 (1982), Memorandum Opinion & Order, FCC 83-241, 94 F.C.C.2d 741 (1983), aff'd in part, vacated in part, sub nom., National Association of Broadcasters v. FCC, 740 F. 2d 1190 (D.C. Cir. 1984).

costly, premature, and unnecessary displacement of highly efficient microwave uses of the 2.1 to 2.2 GHz band with little apparent benefit to the public interest.

IV. The Commission Should Adopt a Phased Approach to Frequency Allocation

In the Notice, the Commission seeks comment on alternative reallocation approaches such as a phased spectrum implementation approach. Notice at ¶ 27. The Commission posits that unused spectrum could be made available at any time and specific blocks of frequencies would be made available for new services at specified intervals such as 50 to 70 MHz blocks every five years. Id. In the Commission's October 1991 Policy Statement on PCS, the Commission also stated that "the spectrum should be allocated in phases in order not to find early developments precluding later ones."[17/]

Telesciences recommends that initially, the Commission should look to underutilized government spectrum to establish an emerging technologies reserve band. Although Telesciences would support a Commission decision not to reallocate the 2.1-2.2 GHz band at this time, if the Commission nevertheless determines that common carrier and private microwave spectrum must be reallocated, then Telesciences agrees that a phased reallocation approach is a reasonable means to provide some spectrum for new services relatively quickly while minimizing the impact on most

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17/ See Policy Statement at ¶ 4.

existing 2 GHz users. Id. Indeed, based on the Commission's early commitment to a phased reallocation plan in the Policy Statement, Telesciences was surprised at the Commission's later proposal in the Notice to clear all 220 MHz of bandwidth and institute secondary licensing rules, without advance notice, for all new applications in the 2 GHz frequencies.

A gradual phasing-in of spectrum is an appropriate way to proceed because the full 220 MHz spectrum reserve contemplated in the Notice is unnecessary to introduce new wireless services such as PCS. A phased spectrum reallocation approach would allow the Commission valuable flexibility to adjust spectrum reallocation decisions on a timely basis in response to new results of technical trials as those results come to light. Further, such refinements to the Commission's reallocation plan could be made without unduly disrupting existing users.

The Commission has previously recognized the value of preserving flexibility in allocation decisions. The Commission has expressly stated that "any allocation, even if appropriate when made, may not remain so as conditions change."[18/] The Commission has also recognized that generous, optimistic spectrum allocations can often result in inefficient and ineffective uses of spectrum.[19/] Accordingly, Telesciences supports a phased

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[18/] See Rules to Allocate Spectrum for, To Establish Rules and Policies Pertaining to, the Use of Radio Frequencies in Land Mobile Satellite Service for Various Common Carrier Services, Notice of Proposed Rulemaking, 50 Fed. Reg. 8149 (1985) at ¶ 15.

[19/] Id. at ¶ 11.

spectrum allocation approach for emerging wireless technologies as an alternative to immediate reallocation of the full 220 MHz.

A. The Commission Should Defer Reallocation of the 2.1-2.2 GHz Microwave Band in a Phased Reallocation Plan Approach for Emerging Technologies

Telesciences recommends that the Commission adopt a phased approach for reallocation of frequencies. The particular frequencies allocated in each phase of the plan should be determined generally on the availability of government spectrum and the FCC filing activity for new fixed microwave facilities commencing with frequencies in government spectrum, the 1.8-1.9 GHz band and 2.1-2.2 GHz band. In the 2.1-2.2 GHz band, the Commission should reallocate spectrum starting with the least active common carrier and private microwave band before reallocating the frequencies in the most active band. Regardless of the specific plan adopted, Telesciences recommends that there should be a minimum of eighteen months notice (and preferably longer) to the industry prior to reallocation of the 2.1-2.2 GHz band in order to permit proper planning.

In particular, Telesciences urges the Commission to continue to work with the NTIA to identify government spectrum at the 1.7 GHz band (and elsewhere) that may be more efficiently used for new emerging technologies. In that regard, Telesciences recommends that, after thorough investigation, the FCC issue

promptly a report on its conclusions concerning the potential to use government spectrum for emerging technologies.

After the Commission reallocates such government spectrum (or if it determines that government spectrum cannot be made available), Telesciences recommends that the Commission then reallocate the 1.8-1.9 GHz frequencies to emerging technologies. As the last stage in the Telesciences' suggested phased approach, the Commission should look to the 2.1-2.2 GHz band for spectrum that should be used for emerging technologies.

In the last stage of this phased approach, spectrum should be made available based on the least used spectrum. Telesciences has determined that the relatively few requests are filed for new fixed microwave facilities in this 2110-2130 and 2160-2180 MHz band. Thus, Telesciences recommends reallocation of the 2110-2130 and 2160-2180 MHz band when the market need is identified, but in no case should it be made in less than three years after the release of the Commission's order in this proceeding. In later phases, the frequencies 2130-2150 and 2180-2200 MHz (for which most requests for new fixed microwave facilities are filed) should be reallocated. Reallocation of these frequencies should occur when the market need is identified and no less than three years after the reallocation of the 2110-2130 and 2160-2180 MHz band.

Our customers generally expect a 20 to 30 year useful life for their microwave equipment. Accordingly, during each phase, Telesciences strongly urges the Commission to allow the then

currently licensed 2 GHz users to continue to operate on a co-primary basis indefinitely while permitting negotiations for the use of the spectrum.

If the Commission believes spectrum "speculation" could still occur under this phased approach, Telesciences recommends that the standards for expanding existing networks or operations outlined in the Commission's "Two Gigahertz Fixed Microwave Licensing Policy" Public Notice, dated May 14, 1992, be followed during the implementation of each phase. In particular, the Commission's rules should not preclude requests from legitimate network operators for new fixed microwave facilities.

V. The Commission Should Make the 10 GHz DTS Frequencies Available for Point-to-Point Operations

Although Telesciences eagerly anticipates the introduction of emerging technologies in the near future, it recognizes that the Commission must ensure that displaced 2 GHz users can be adequately accommodated in other bands. Due to the need for additional replacement frequencies for 2 GHz users, Telesciences urges the Commission to permit the 10 GHz Digital Termination Service ("DTS") frequencies to be made available for displaced and new private and common carrier fixed microwave users. The Commission should make the 10.5 GHz band available regardless of whether it decides to reallocate all 220 MHz at this time or whether allocation of the 10.5 GHz frequencies would be accomplished to complement the phased release of spectrum in the

1.8 to 2.2 GHz bands for emerging technologies. This action would result in better use of 100 MHz of currently underutilized spectrum for which low capacity, cost effective equipment is currently available. To ensure that the 10 GHz band is suitable for use by common carrier and private microwave users, Telesciences urges the Commission to revise the frequency stability and spectrum mask requirements for the DTS frequencies. These revisions will ensure that low capacity, narrow channel uses can be made of the 10 GHz DTS frequencies.

Telesciences specifically recommends that the 10 GHz DTS band -- 10580-10615, 10645-10680 MHz -- be made available for point-to-point operation. The same channelization and rules for technical operation should apply as in the 10 GHz point-to-point band (10550-10580, 10615-10645 MHz). Telesciences believes that this use of the greatly underutilized DTS portion of the band can help to relieve the current search for replacement spectrum.

VI. The Commission Must Identify a Clear Path of Migration for Existing and Future Users of 2 GHz Frequencies to the 4, 6 and 10 GHz Band

The Commission's current proposal for replacement spectrum, primarily to the 4 and 6 GHz frequency bands, fails to identify clearly a spectrum home for displaced 2 GHz users to the extent that it does not address the changes to the technical and operational rules for these bands that must be made to accommodate the influx of new users that formerly relied on the 2 GHz bands. Consequently, 2 GHz users wishing to build new

facilities have no suitable spectrum until these proceedings are concluded.

In particular, in addition to making 10 GHz DTS frequencies available, new channelization plans providing for narrowband operations must be implemented for the 4 and 6 GHz frequencies. Channel loading requirements for operations in the 4 and 6 GHz bands will also need to be revised.[20/] Finally, the Commission must consider whether the current extensive use of the 4 GHz band for satellite-to-earth transmissions limits the utility of this band for 2 GHz uses. This existing use -- not discussed in the OET Report -- may render the 4 GHz band unsuitable as a replacement spectrum band for 2 GHz users.[21/]

Telesciences specifically recommends that the 6 GHz bands (5925-6425, 6525-6875 MHz) be rechannelized for comparable channel loading that exists at 2 GHz. In addition these bands should be shared for co-primary use by private and common carrier users and these bands should be equally available for displaced 2 GHz users as well as new applicants. To preserve these frequencies for longer paths, Telesciences recommends that these frequencies be used for paths greater than 10 miles only. Telesciences agrees with the Commission's recommendation that for paths less than 10 miles user should use frequencies at 10 GHz and above.

[20/] See 47 C.F.R. §§ 21.710, 21.122.

[21/] See Petition for Rulemaking, ET Docket No. 92-9, filed by the Utilities Telecommunications Council, March 31, 1992.

VII. Telesciences' Specific Recommendations

Before displacing users in the 2.1-2.2 GHz band, Telesciences recommends that the Commission wait until market and technical tests of emerging technologies are complete to determine if sharing of the spectrum is possible. Results of these tests should provide useful information that is currently unavailable and enable the Commission to best determine whether clearing the 2.1-2.2 GHz band will ultimately be necessary.

The Commission should consider substituting for the 2.1-2.2 GHz band the other frequencies designated by WARC (1700-2690 MHz) under the same criteria as that applied by the Commission to the targeted 2 GHz frequencies. In particular, the Commission should give high priority to investigating the possibility of using the government bands at 1710-1850 MHz and 2200-2290 MHz, the broadcast auxiliary band at 1990-2110 MHz, and the 2500-2690 MHz band for emerging technologies in lieu of the 2.1-2.2 GHz band and determine which part of the spectrum would have the least impact on current users.

If the Commission nonetheless decides to reallocate fixed microwave spectrum to an emerging technologies band, Telesciences strongly recommends that spectrum for new applications be phased-in under an approach in which the Commission would look first to underutilized government spectrum, the 1.8-1.9 GHz bands, and finally the 2.1-2.2 GHz bands. In the 2.1-2.2 GHz bands, the most heavily used common carrier and private microwave bands should be reallocated last. Regardless of the reallocation

approach adopted by the Commission, Telesciences also urges the Commission to adopt channelization and other rules for the 10 GHz DTS band to make that band available for fixed point-to-point operations. Finally, Telesciences urges the Commission to adopt new technical rules (including revised channelization plans) necessary to make the 4 and 6 GHz frequency bands available as replacement spectrum.

CONCLUSION

For the reasons discussed above, Telesciences urges the Commission to adopt Telesciences' recommendations regarding the Commission's spectrum reallocation proposal in ET Docket 92-9.

Respectfully submitted,

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Dated: June 8, 1992